

## ABSTRACT OF THE DISCLOSURE

An apparatus for simultaneous OTM demultiplexing, electrical clock recovery  
5 and optical clock generation, and optical clock recovery using a traveling-wave  
electroabsorption modulator. The apparatus includes an TW-EAM and a PLL coupled  
thereto. The TW-EAM includes a first, a second a third, and a fourth. The first port is  
used for an optical input and the third port is used for optical output. The second port is  
coupled to an input, and the fourth port is coupled to an output, of the PLL. When the  
10 first port receives optical input, the second port produces a photocurrent to be applied to  
the PLL, the fourth port receives a recovered clock produced by the PLL, and the third  
port produces demultiplexed data and an optical clock. Using the same configuration,  
the apparatus produces a recovered optical clock signal.